STATE OF NEW MEXICO
BEFORE THE ENVIRONMENTAL IMPROVEMENT BOARD

IN THE MATTER OF PROPOSED REVISIONS
TO THE STATE IMPLEMENTATION PLAN
FOR REGIONAL HAZE No. EIB 11-01 (R)

NMED EXHIBIT 8a
WRITTEN TESTIMONY OF MARY UHL
SCIENTIFIC AND REGULATORY BACKGROUND OF REGIONAL HAZE

Introduction

In my testimony, I will discuss the history of the federal Regional Haze Rule Requirements, the Clean Air Act (CAA) and Clean Air Act Amendments of 1990; the science of visibility and haze; the Grand Canyon Visibility Transport Commission and its successor, the Western Regional Air Partnership; the decision to proceed with "Section 309" of the Regional Haze Rule instead of "Section 308" of that rule, and New Mexico's 2003 submittal to fulfill requirements of the regional haze rule.

History and Science

Haze is caused when light is absorbed or scattered by air pollution. Pollutants causing haze include sulfates, nitrates, carbon, soot, dust and nitrogen dioxide. Pollution sources that contribute to the formation of haze include automobiles, forest fires, windblown dust and industrial sources, including electric utilities.

Haze is considered a regional problem because of the potential for the pollutants that cause haze to travel for hundreds of miles, crossing state boundaries. For example, air pollution from wildfires in California frequently contributes to haze in New Mexico, significantly reducing visibility in the state. Power plant emissions in the Four Corners region significantly contribute to haze at the Grand Canyon on some days.

Visibility refers to the clarity with which scenic vistas and landscape features are perceived at great distances. Visibility is affected by pollutant concentrations, the viewing angle, relative humidity, cloud characteristics, and other physical factors such as

color contrast between objects. Haze reduces the appearance of a landmark or scenic vista. In the absence of manmade pollution, natural visual range is estimated to be about 140 miles in the western U.S. and 90 miles in the eastern U.S. In the Clean Air Act Amendments of 1977, congress established a national visibility goal as:

> "the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory Federal Class I areas which impairment results from manmade air pollution." CAA § 169A(a)(1), 42 U.S.C. 7491(a)(1).

In 1990, congress passed further amendments to the Clean Air Act by large margins in both the House and the Senate. Among other new initiatives and programs for air pollution, congress mandated that the U.S. EPA promulgate what is known as the Regional Haze Rule to protect visibility in 156 national parks and wilderness areas because of evidence of manmade impairment to visibility.[1] The Regional Haze rule, finalized in 1999,[2] calls for states to establish goals aimed at improving visibility in the mandatory Federal Class I areas and to develop long-term plans for reducing pollutant emissions that contribute to visibility degradation. The rule gives the states the flexibility to develop cost-effective strategies for pollution reductions and encourages states to coordinate with each other through regional planning efforts. In the 1990 amendments, congress also established the Grand Canyon Visibility Transport Commission,[3] which I will address later.

The Regional Haze Rule is based on the deciview index, which relates to visual perception. The deciview index has a value near zero for a pristine atmosphere, and each deciview unit corresponds to a small but perceptible scenic change that is observed under either clean or polluted conditions. Like the decibel scale for sound, similar changes in deciviews are perceived as equal. A one-deciview change is perceptible to the human eye. The Regional Haze Rule requires visibility improvements on the most-impaired days (the 20th percentile of the days at the site with the highest deciview index) and no additional visibility impairment on the least-impaired days (the 20th percentile of the days at a site with the lowest calculated impairment).

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[1] See CAA § 169B, 42 U.S.C. 7492.
[2] 64 Fed. Reg. 35714 (July 1, 1999).
[3] See CAA 169B (f), 42 U.S.C. 7492(f).

The EPA and other federal agencies coordinate the monitoring of visibility at over 100 sites in the U.S. that are representative of all Federal Class I areas, with the exception of monitoring at the Bering Sea Wilderness Class I area. There are five major types of aerosols measured by the visibility monitoring program: sulfates, nitrates, organic carbon, elemental carbon, and crustal material. These pollutants originate from different emission sources and impair visibility to varying degrees. Sulfates and nitrates are formed from sulfur dioxide and nitrogen oxide emissions. The combustion of coal is the most prevalent source of sulfur dioxide, while fossil fuel combustion results in nitrogen oxide emissions. Organic carbon aerosols are formed by vegetative growth, burning vegetation and solvent usage. Incomplete combustion produces elemental carbon aerosols. Crustal material aerosols are formed when soils are disturbed by wind erosion, construction, tilling or travel on unpaved roads.

Measured fractions of the five types of aerosols are used to calculate light extinction through a complex, scientific methodology. Light extinction is then converted to deciviews to quantify humanly-perceptible changes in visibility.

There are nine Class I areas in New Mexico: Bandelier National Monument, Bosque del Apache, Salt Creek, Carlsbad Caverns, Wheeler Peak, San Pedro Parks, Pecos, Gila and White Mountain Wilderness areas. Slide 1 of Exhibit8b shows a map that demonstrates the locations of each of the Class I areas in New Mexico. New Mexico is affected by haze. See Slides 4, 5, and 6 of Exhibits 8b.

GCVTC and WRAP

The Grand Canyon Visibility Transport Commission (GCVTC) was formed in 1991 pursuant to Congress' charge to analyze and address haze formation on the Colorado Plateau. The Commission consisted of 8 states, including New Mexico, 4 tribes, and federal members (EPA and federal land managers) as ex-officio participants, including representatives of industry and environmental groups. The group studied the contribution of nine western states – Oregon, California, Nevada, Wyoming, Utah, Arizona, Colorado, Idaho and New Mexico – to regional haze in the Grand Canyon and other Class I areas on the Colorado Plateau. San Pedro Wilderness is the only Colorado Plateau Class I area in New Mexico. The GCVTC submitted recommendations for air pollution reduction programs specific to the west to address visibility impairment from

regional haze to EPA in 1996. These recommendations were later adopted into the Section 309 federal regional haze rule (40 CFR § 51.309) as an implementation option for the nine western states in lieu of the Regional Haze rule requirements established for the rest of the country in Section 308 of the rule (40 CFR § 51.308). Section 309 also contains provisions to allow states demonstrate that their "309" program also satisfies the rule's requirements for the states additional Class I areas that are not on the Colorado Plateau. See 40 CFR § 51.309(g)

Although the Commission's board was made up of states, tribes and federal officials, the work groups that developed the pollution reduction strategies were made up of state, tribal and federal government representatives, industrial facility representatives and representatives of environmental organizations. In New Mexico, Phelps Dodge (now Freeport-McMoran), APS, PNM, Environmental Defense Fund, NM Citizens for Clean Air and Water and the Sierra Club all participated in these work groups.

The successor to the GCVTC was the Western Regional Air Partnership (WRAP). The WRAP was formed in 1997 and administered by the Western Governors' Association and the National Tribal Environmental Council at that time. The WRAP is now solely administered by the Western Governors' Association. The WRAP was designated by the EPA as the Regional Planning Organization (RPO) for western states. The EPA funds the RPOs to technically assist states in meeting federal requirements that relate to regional pollutants, such as haze and ozone. The WRAP provided technical support to western states in the development and implementation of the GCVTC recommendations. As well, the WRAP provided technical support to western states that chose to fulfill the requirements of Section 308 of the Regional Haze Rule. The WRAP membership included 13 western states, tribes, and federal agencies. Like the GCVTC, it had working committees and forums that relied on stakeholder participation to develop the products needed by the state to implement the federal regional haze rule. This reliance on stakeholder participation made the WRAP unique nationally; no other RPO so completely and transparently included input from non-governmental participants. The New Mexico Environment Department (NMED) was an active participant on the WRAP board during the regional haze rule implementation plan development process and remains an active participant today.

308 v. 309

As mentioned, the strategies that were developed by the GCVTC for controlling pollutants that lead to the formation of haze in nine western states were adopted into Section 309. According to the federal Regional Haze Rule, each of the nine western states had the option to utilize the strategies developed by the commission in the development of a state implementation plan or to use those established for the rest of country as described in Secton.308.

Western stakeholders developed the requirements of Section 309 and tailored the option to western interests. There are a number of critical differences between Section 308 and Section 309. First, Section 309 prescribes an EPA-approved approach for demonstrating "reasonable progress" towards improving visibility. Under Section 308, states and tribes must examine all sources of haze-forming pollution and develop strategies that make reasonable progress towards the regional haze goals. The western approach, under Section 309, contained sulfur dioxide caps for the region with a backstop emissions trading program that must be implemented if the cap is exceeded to address sulfur dioxide pollution leading to sulfates. Section 308 does not require a trading program for sulfur dioxide, but instead requires that certain large emitters of sulfur dioxide, like coal-fired utilities and smelters, install the "best available retrofit technology" (BART) to reduce sulfur dioxide emissions, in addition to whatever other control strategies are necessary to make "reasonable progress." Almost ten years ago, the Air Quality Bureau estimated costs of developing and implementing the Section 308 option greatly exceeded costs of development and implementing the Section 309 option.

In an effort to make the best choice between the two options, the Air Quality Bureau convened a large group of stakeholders to provide input to the state in April 2002. The process was open to all potentially interested or affected stakeholders. The invitation to participate in the process was sent to more than seven hundred stakeholders, and approximately 100 people participated in one or more meetings or conference calls. The Air Quality Bureau retained the services of a former industry expert who had been involved in the GCVTC and negotiations with EPA in the development of the western option and process facilitators to assist the stakeholders in understanding the options and arriving at a consensus recommendation. Some stakeholders had previously participated

in the GCVTC or were currently participating in the WRAP and were familiar with the regional haze rule. On the other hand, many had never heard of the Regional Haze Rule. There were twelve in-person stakeholder meetings. Several were educational to assist the stakeholders in developing an understanding of the options and how they might be affected by each option. The Air Quality Bureau established a website to ensure that all meeting notices, agendas, meeting materials and minutes, were available to all invited stakeholders and other interested parties. In addition, NMED hosted conference calls in the days following many of the meetings to brief any stakeholders that could not attend the meetings. Many organizations actively participated in this stakeholder process by attending one or more meetings or conference calls.

The first phase of the stakeholder process began April 22, 2002 with a kick-off meeting. Background briefings were held through May 13, 2002 with an expectation of issuing findings and recommendations on June 17, 2002. On May 24, 2002, as the development of a consensus recommendation was beginning, the U.S. Court of Appeals for the D.C. Circuit ruled on consolidated challenges to the Regional Haze Rule by industry, environmental interests, and the states of Michigan and West Virginia. Several New Mexico stakeholders, or organizations that the stakeholders are members of, were parties to the legal challenges against EPA. Due to uncertainties regarding the effect of the Circuit Court ruling, the stakeholders were divided in how New Mexico should proceed. On June 17, 2002 the stakeholders issued a status report and requested an extension of the deliberative process. Based on that request, the stakeholder process was extended until October 15, 2002, at which time the Air Quality Bureau indicated a recommended course of action was needed in order to meet state implementation plan submittal deadlines. In the interim, the Air Quality Bureau sent a letter to EPA requesting clarification on the DC Circuit Court ruling and how it affected the regional haze rule. The stakeholder group met several times to discuss the EPA response and present caucus opinions on various recommendations. The final report from the group was presented to NMED on October 15, 2002, and was shortly followed by the submission of a minority report from several stakeholders. The final report recommended that NMED work on the common components of Section 308 and Section 309 so that either option could be pursued as more information became available.

In June of 2003, the New Mexico Environment Department, in consultation with the Governor's office, determined that adequate state resources were no longer available to pursue both options. The New Mexico Environment Department made the decision to submit a state implementation plan for Section 309. A petition was submitted to the EIB and a hearing was conducted in December 2003. The EIB ultimately approved the state implementation plan for Section 309.